



**ROSATOM**

State atomic energy corporation "Rosatom"

# **WORKFORCE PLANNING FOR NUCLEAR POWER PROGRAMS OF ROSATOM PARTNER COUNTRIES**

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# The Journey for a New Build: 3 Milestones, 19 Elements

## Milestones

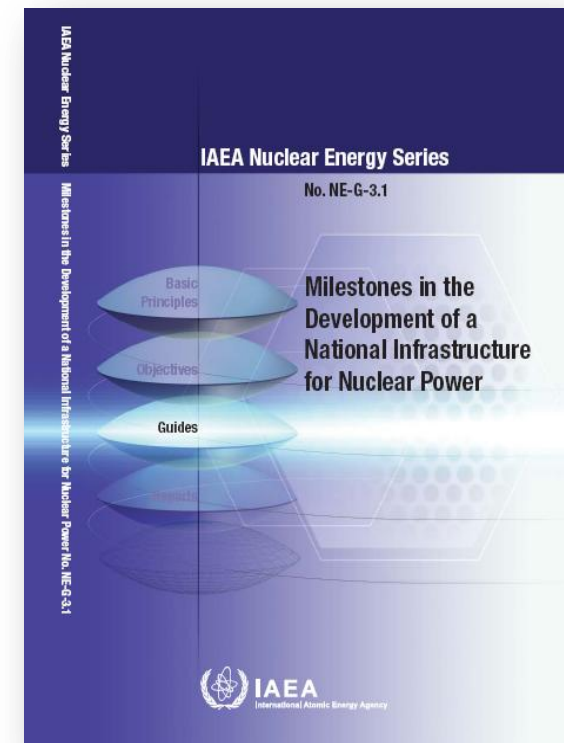
**Milestone 1: Understanding the commitment (pre-project)**

**Milestone 2: Ready to request bid for the first NPP**

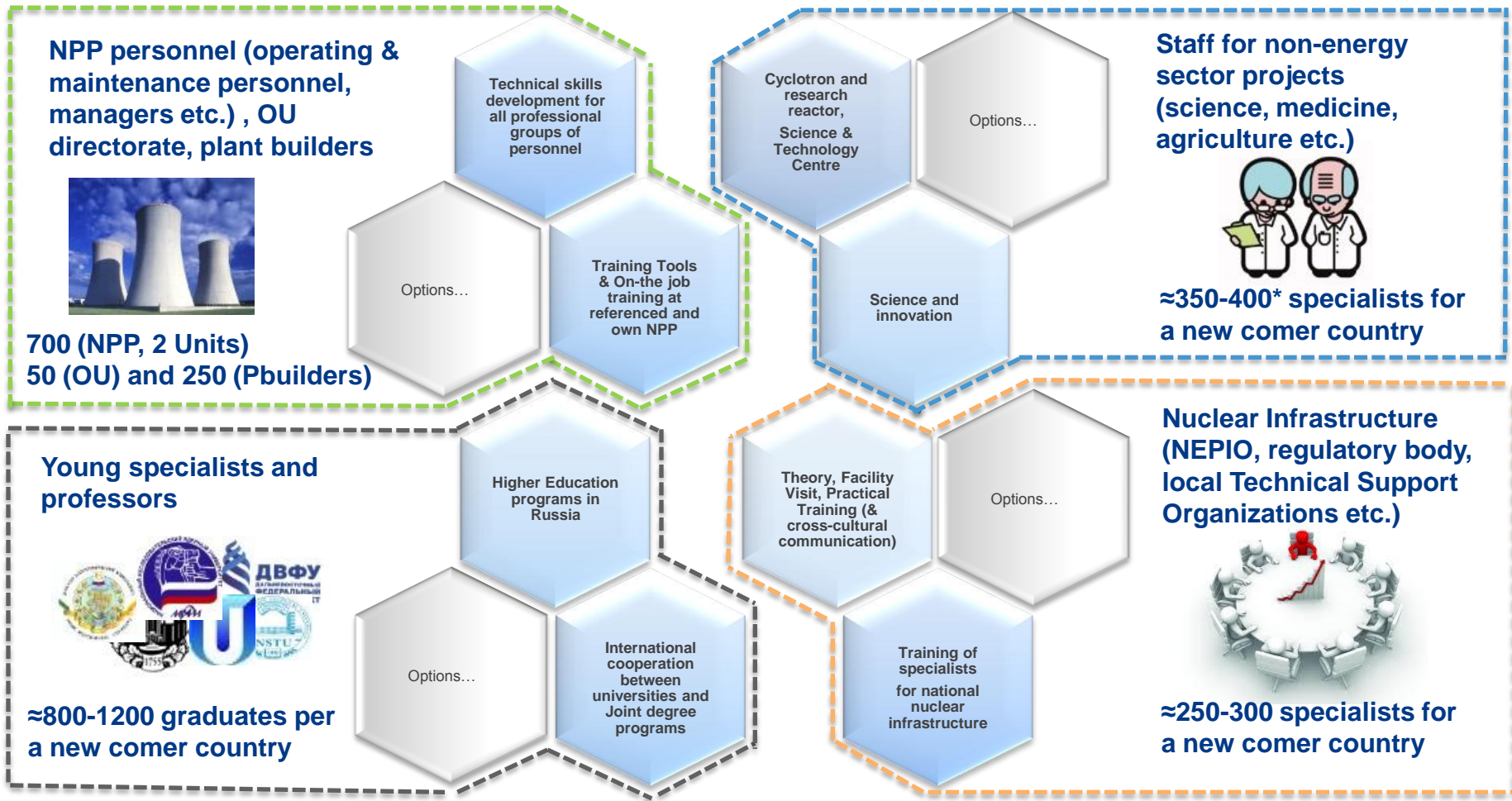
**Milestone 3: Ready to commission and operate the first NPP**

## Elements

- National Position
- Management
- Legislative Framework
- Regulatory Framework
- Stakeholder Involvement
- Site & Supporting Facilities
- Environmental Protection
- Nuclear Fuel Cycle
- Industrial Involvement
- Procurement
- Funding and Financing
- Nuclear Safety
- Safeguards
- Radiation Protection
- Electrical Grid
- **Human Resources Development**
- Emergency Planning
- Security & Physical Protection
- Radioactive Waste



# Key elements of ROSATOM HR development product for foreign partners (starting from scratch)



\* - Should be vary from country to country

# The structure and the key elements of the Training and Development system of ROSATOM

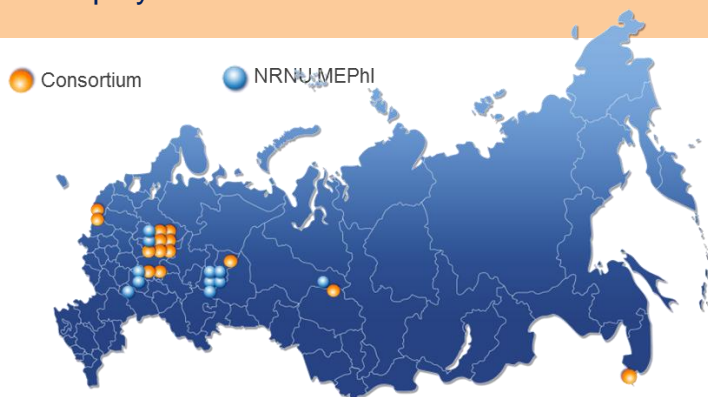
## ROSATOM Training and development system

### Universities (more then 150 programs)

**National Research Nuclear University (MEPhI) and the consortium of key universities**

**Other Universities - partners**

- higher education degree programmes in nuclear sector and more
- provides about 30% of Rosatom yearly employment



**Consortium of ROSATOM Supporting Universities**

### In-company training (more then 100 programs)

**Concern Rosenergoatom**

- on-the-Job Training

**Atomtechenergo**

- practical training using mockup of NPP system

**VNIIAES**

- design and installation of Full Scope Simulator

**ROSATOM Central Institute for continuing education and training (SCICET)**

- theoretical courses

**ROSATOM Corporate Academy**

- management skills

**Consortium of 5 ROSATOM Subsidiaries to Train NPP Personnel**

# Nuclear Education & Training in Russia: International students in Russian universities and development of international universities' cooperation



2010

2011

2012

2013

2014

2016

Start of  
advanced  
training  
program

Expanding of  
the pool of  
partner  
countries

Development  
of  
international  
cooperation

Education  
programs  
expanding (general  
education, master  
degree,  
internships)

Installation of  
education  
programs in  
partner-  
countries

Cooperation  
between Russian  
and universities of  
partner-countries

	Vietnam	29
	Jordan	8
	Mongolia	9
	<b>Total:</b>	<b>46</b>

	Vietnam	99
	Turkey	50
	Jordan	10
	Mongolia	9
	<b>Total:</b>	<b>168</b>

	Vietnam	168
	Turkey	117
	Mongolia	19
	Jordan	10
	<b>Total:</b>	<b>314</b>

	Vietnam	254
	Turkey	190
	Mongolia	27
	Jordan	10
	<b>Total:</b>	<b>472</b>

	Vietnam	344
	Turkey	270
	Bangladesh	10
	Mongolia	41
	Jordan	19
	Algeria	10
	Nigeria	5
	Cuba	3
	Indonesia	2
	Ukraine	2
	Egypt	2
	Finland	1
	Brazil	1
	China	1
	Armenia	1
	Kazakhstan	1
	<b>Total:</b>	<b>713</b>

1200 people



## Cooperation in the following areas:

For students

- Scholarships for students to study in Russia
- More then 150 higher education programs (bachelor degree, specialist degree, master degree, PhD degree)

For Universities

- Joint educational programs
- Academic exchanges (professors, students, interns)
- Joint scientific projects
- Conferences, seminars and other events

*In progress*

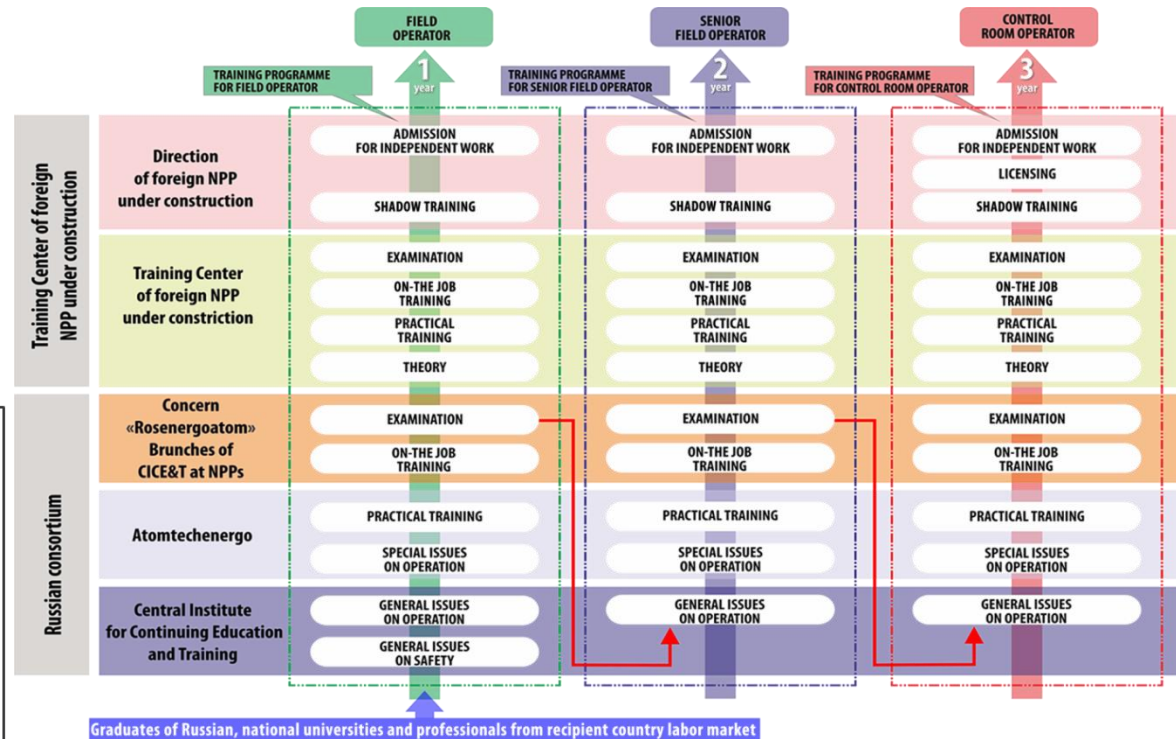


# Nuclear Education & Training in Russia:

## Consortium of 5 ROSATOM Subsidiaries to Train NPP Personnel to support Global Expansion of WWER Technology (established 11.10.2010)



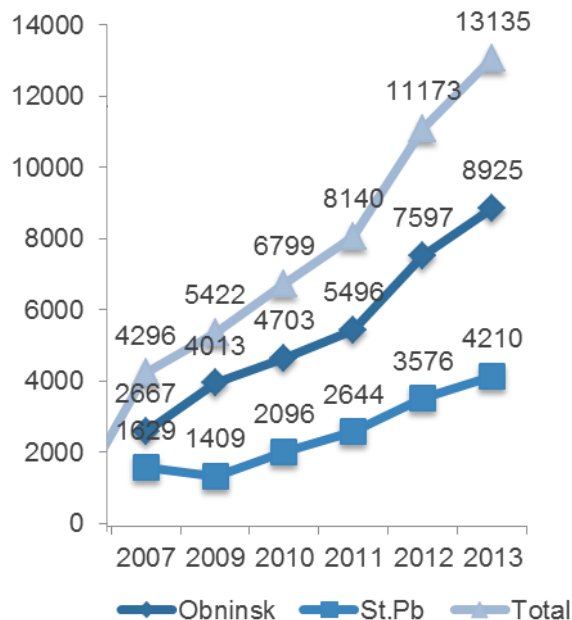
- Concern Rosenergoatom – on-the-Job Training
- Atomtechenergo – practical training using mockup of NPP system
- Rosatom-CICET – theoretical courses
- VNNAES – design and installation of Full Scope Simulator
- Rosatom Corporate Academy – management skills



### Cooperation with the Consortium in the following areas:

- Training with the use of Full Scope Simulators (WWER NPP)
- Training in the area of Small&Medium Reactors (SVBR, Floating NPP)
- Training in the area of Fuel Cycle Development (fuel fabrication for current and advanced reactors)
- More then 100 training programs

Number of trainees (persons/yr)



# IS Solutions for WF Planning: OCTOPUS overview

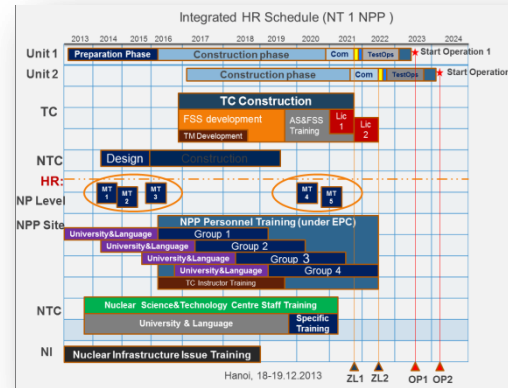
## Aim:

- To provide IT-support of all HR&WF Planning activities for NPP construction Project + other projects

## Goals:

- To define actual needs in HR&WF area for supporting NPP Project
- To provide planning of HR&WF activities for all stakeholders
- To ensure monitoring of current status of the HR&WF activities online, including budgeting
- To evaluate risks of deviations from the HR&WF schedule
- To support all managerial solutions in terms of carrier development of the personnel

## Integrated HR Schedule (NT 1 NPP)



## IS Solutions (8D-management)

- Country
- Projects
- Personnel category
- Number of staff
- Training duration
- Training Program
- Training Entity
- Budget source

## To sum up:

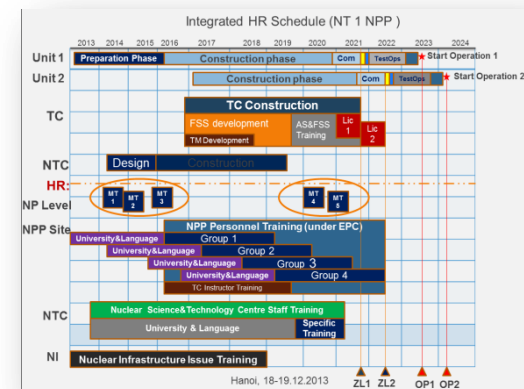
### HR&WF Planning Challenges

- Human resources development
- Complexity of the training programs (milestones)
- A significant amount of nuclear regulations to be issued/implemented (safety, security, ...)
- Long term programming (project management, strategies,...)
- Localization (high standards, national companies,...) etc.

➤ **IT System can help both Parties and support in HR&WF Planning activities (short- and long-term)**

### An approach suggested

- Define 'big picture' for the Nuclear Program
- Use **Octopus** as a supportive and collaborative IT tool
- Start with urgent country' needs and put those needs into the IT System





Thank you for your attention!

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# Integrated HR Schedule (NT 1 NPP )

